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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TRAN, DZUNG D

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/595,023	Applicant(s) HAINBERGER ET AL.	
	Examiner Dzung D. Tran	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 13, 16, 19 and 21-26 is/are rejected.
- 7) ☒ Claim(s) 8-12, 14, 15, 17, 18, 20 and 27-30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7, 13, 16, 19, 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uda et al. US 7,463,829 in view of Pirio et al. (US Patent No. 5,532,861).

Regarding claim 1, Uda teaches in Figure 2, a method/apparatus of an optical regenerator comprising:

an optical amplifier 33 at an input of the regenerator 30;

an adjusting device 35 to receive the optical signal after the optical amplifier, adjust the optical output power to a level of launch power from the regenerator and output an adjusted optical signal;

a first monitoring device 44 to monitor the optical signal after the optical amplifier and output a first monitoring signal;

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a second monitoring device 46 to monitor an optical signal after the adjusting device and output a second monitoring signal; and

a control unit 20 to receive the first and second monitoring signals and control the optical amplifier based on the first monitoring signal and the adjusting device based on the second monitoring signal.

Uda differs from claim 1 of the present invention in that he does not teach an all-optical nonlinear device to provide a nonlinear transfer function between optical input power of an optical signal after the optical amplifier and optical output power of an optical signal after the nonlinear device.

Pirio discloses in Figures 7A, 7B, a regenerator having an optical amplifier 72 at an input of the regenerator 71 and an all-optical nonlinear device 5 connect to the amplifier 72.

At the time of the invention was made, it would have been obvious to an artisan to replace the amplifier 33 of Uda with the regeneration in Figures 7A, 7B taught by Pirio in the system of Uda. One of ordinary skill in the art would have been motivated to do that in order to compensate the non-linear effect distortion.

Regarding claim 2, Uda discloses a first optical coupler 34 to tap a part of the optical signal after the optical amplifier to provide the first monitoring device with the tapped optical signal; and a second optical coupler 36 to tap a part of the optical signal after the adjusting device to provide the second monitoring device with the tapped optical signal.

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3. (original) The optical regenerator according to claim 1, wherein the adjusting device includes an optical amplifier.

Regarding claim 4, Uda discloses wherein the adjusting device includes a variable attenuator 35.

Regarding claim 5, Uda discloses, wherein the control unit communicates with one of another optical regenerator and a receiver via an optical supervisory channel (col. 2, lines 30-48).

Regarding claim 6, Uda discloses wherein the first monitoring device includes a photodiode to measure the optical input power of the optical signal after the optical amplifier (col. 10, lines 2-4).

Regarding claim 7, Uda discloses an optical fiber transmission system comprising an optical transmitter, an optical receiver, an optical fiber to connect the transmitter with the receiver, a plurality of optical amplifiers along the optical fiber to compensate absorption losses of a signal light passing through the optical fiber, and at least one optical regenerator according to claim 6, wherein the control unit controls the optical amplifier using a signal from the photodiode to adjust an optical input power to the nonlinear device to a preset value (see Figure 1).

Regarding claim 13, Uda discloses wherein the first monitoring device includes a signal quality monitor to monitor a signal quality of the optical signal after the optical amplifier (col. 10, lines 2-4).

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Regarding claim 16, Uda discloses wherein the second monitoring device includes a signal quality monitor to monitor a signal quality of the optical signal after the adjusting device (col. 10, lines 5-8).

Regarding claim 19, Uda discloses wherein the control unit 20 controls the optical amplifier 33 to adjust an optical input power to the nonlinear device using a signal from the signal quality monitor in the second monitoring device of the same regenerator.

Regarding claims 21 and 22, Pirio discloses in Figures 7A, 7B, a monitoring device 73 to monitor the optical signal between the optical amplifier 72 and the nonlinear device 5 and output a monitoring signal.

Regarding claim 22, Pirio discloses in Figures 7A, 7B, an all-optical nonlinear device 5 connect to the amplifier 72.

8. Claims 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uda et al. US 7,463,829 in view of Pirio et al. (US Patent No. 5,532,861) and further in view of Bonthron et al. (US Patent No. 6,738,173), referred herein as Bonthron.

Regarding claims 23 and 24, the combination Uda and Pirio teaches the limitations of claim 22. However, the combination Uda and Pirio does not teach wherein a target value of the optical input power of the optical signal is preset at a time of installation of the regenerator in an optical fiber transmission system, by adjusting the optical input power such that a bit error rate at a receiver in the optical fiber transmission system is minimized and storing an adjusted value as the target value. It is well-known in the art to use a minimum bit error rate as the criteria for choosing the operating parameters of a

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regeneration system. For example, Bonthron teaches providing a minimal bit error rate in a system with a regenerator (column 1, lines 53-67 and column 2, lines 1-5 teach minimizing the bit error rate in a system that includes regenerators). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement the teaching of the minimal bit error rate of Bonthron for the predictable result of minimizing the errors at the receiver, where the final data is read.

Regarding claims 25 and 26, combination Uda and Pirio teaches the limitations of claim 22. However, combination Uda and Pirio does not teach a method wherein a target value of the optical input power of the optical signal is preset at a time of installation of the regenerator in an optical fiber transmission system, by adjusting the optical input power such that a bit error rate before a nonlinear device in a subsequent regenerator or at a receiver in case of the last regenerator in the optical fiber transmission system is minimized and storing an adjusted value as the target value. Bonthron teaches providing a minimal bit error rate in a system with a regenerator (column 1, lines 53-67 and column 2, lines 1-5 teach minimizing the bit error rate in a system that includes regenerators). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement the minimal bit error rate of Bonthron in the system of Uda and Pirio for the predictable result of minimizing the errors at the receiver, where the final data is read.

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3. Claims 8-12, 14, 15, 17, 18, 20 and 27-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

4. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dzung Tran

12/30/2008

/Dzung D Tran/

Primary Examiner, Art Unit 2613